SEQUENCE LISTING

<110> Morell, Andreas
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<120> POLYPEPTIDES CAPABLE OF FORMING ANTIGEN BINDING STRUCTURES WITH SPECIFICITY FOR THE RHESUS D ANTIGENS, THE DNA ENCODING THEM AND THE PROCESS FOR THEIR PREPARATION AND USE

<130> 6816/P63221US0

<140> 09/147,443
<141> 1999-01-21

<150> PCT/EP97/03253
<151> 1997-06-20

<150> EP 96810421.6
<151> 1996-06-24

<160> 64

<170> PatentIn Ver. 2.1

<210> 1
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<220>
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<222> (1)..(375)

<400> 1

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Gln Val Lys Leu Leu Glu Ser Gly Gly Gly Val Val Gln Pro Gly Arg
  1               5                  10                  15

tcc ctg aga ctc tcc tgt ata gcg tct gga ttc acc ctc agg aat tat   96
Ser Leu Arg Leu Ser Cys Ile Ala Ser Gly Phe Thr Leu Arg Asn Tyr
             20                  25                  30

gcc atg cac tgg gtc cgc cag gct cca ggc aag ggg ctg gag tgg gtg   144
Ala Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
         35                  40                  45

gca ggt ata tgg ttt gat gga agt aac aaa aac tat gca gac tcc gtg   192
Ala Gly Ile Trp Phe Asp Gly Ser Asn Lys Asn Tyr Ala Asp Ser Val
     50                  55                  60

aag ggc cga ttc acc atc tcc aga gac aat tcc aag aac acg ctg tat   240
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 65                  70                  75                  80
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ctg caa ctg aac agc ctg aga gac gag gac acg gct gtg tat tat tgt   288
Leu Gln Leu Asn Ser Leu Arg Asp Glu Asp Thr Ala Val Tyr Tyr Cys
                85                  90                  95

gcg aga gag cga gca gca cgt ggt att tct agg ttc tat tac tac atg   336
Ala Arg Glu Arg Ala Ala Arg Gly Ile Ser Arg Phe Tyr Tyr Tyr Met
            100                 105                 110

gac gtc tgg ggc aaa ggg acc acg gtc acc gtc tcc cca               375
Asp Val Trp Gly Lys Gly Thr Thr Val Thr Val Ser Pro
        115                 120                 125
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<210> 2
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<212> PRT
<213> Homo sapiens

<400> 2

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Gln Val Lys Leu Leu Glu Ser Gly Gly Gly Val Val Gln Pro Gly Arg
  1               5                  10                  15

Ser Leu Arg Leu Ser Cys Ile Ala Ser Gly Phe Thr Leu Arg Asn Tyr
             20                  25                  30

Ala Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
         35                  40                  45

Ala Gly Ile Trp Phe Asp Gly Ser Asn Lys Asn Tyr Ala Asp Ser Val
     50                  55                  60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 65                  70                  75                  80

Leu Gln Leu Asn Ser Leu Arg Asp Glu Asp Thr Ala Val Tyr Tyr Cys
                85                  90                  95

Ala Arg Glu Arg Ala Ala Arg Gly Ile Ser Arg Phe Tyr Tyr Tyr Met
            100                 105                 110

Asp Val Trp Gly Lys Gly Thr Thr Val Thr Val Ser Pro
        115                 120                 125
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<210> 3
<211> 318
<212> DNA
<213> Homo sapiens

<220>
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<222> (1)..(318)

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gtg atg acc cag tct cca tcc tcc ctg tct gca tct gta ggc gac aga   48
Val Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly Asp Arg
  1               5                  10                  15
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```
gtc acc atc act tgc cgg gca agt cag agc att agg agc cat ttg aat   96
Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Arg Ser His Leu Asn
            20                  25                  30

tgg tat cag cag aaa cca ggg aaa gcc cct aag ttg ctg atc tat ggt   144
Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr Gly
        35                  40                  45

gcg tcc act ttg caa agt ggc gtc cca tca agg ttc agt ggc agt ggc   192
Ala Ser Thr Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly Ser Gly
    50                  55                  60

tct ggg gca gtt ttc act ctc acc atc gcc agt cta caa cct gaa gat   240
Ser Gly Ala Val Phe Thr Leu Thr Ile Ala Ser Leu Gln Pro Glu Asp
65                  70                  75                  80

ttt gca act tac tac tgt caa gag agt tac agt aat cct cta atc acc   288
Phe Ala Thr Tyr Tyr Cys Gln Glu Ser Tyr Ser Asn Pro Leu Ile Thr
                85                  90                  95

ttc ggc caa ggg aca cga ctg gag act aaa                          318
Phe Gly Gln Gly Thr Arg Leu Glu Thr Lys
            100                 105
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<210> 4
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<212> PRT
<213> Homo sapiens

<400> 4

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Val Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly Asp Arg
  1               5                  10                  15

Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Arg Ser His Leu Asn
            20                  25                  30

Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr Gly
        35                  40                  45

Ala Ser Thr Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly Ser Gly
    50                  55                  60

Ser Gly Ala Val Phe Thr Leu Thr Ile Ala Ser Leu Gln Pro Glu Asp
65                  70                  75                  80

Phe Ala Thr Tyr Tyr Cys Gln Glu Ser Tyr Ser Asn Pro Leu Ile Thr
                85                  90                  95

Phe Gly Gln Gly Thr Arg Leu Glu Thr Lys
            100                 105
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<210> 5
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<213> Homo sapiens

<220>
<221> CDS
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<400> 5

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cag gtg aaa ctg ctc gag tct ggg gga ggc gtg gtc cag ccg ggg ggg   48
Gln Val Lys Leu Leu Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
  1               5                  10                  15

tcc ctg aga ctc tcc tgt gaa gcg tct gga ttc gcc ctc aga agt tct   96
Ser Leu Arg Leu Ser Cys Glu Ala Ser Gly Phe Ala Leu Arg Ser Ser
            20                  25                  30

ggc atg cac tgg gtc cgc cag gct cct ggc aag ggg ctg gag tgg gtg   144
Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
         35                  40                  45

gca ctt ata tgg ttt gat gga agt atc aga tcg tat gca gaa tcc gtg   192
Ala Leu Ile Trp Phe Asp Gly Ser Ile Arg Ser Tyr Ala Glu Ser Val
     50                  55                  60

aag ggc cga ttc acc atc tcc aga gac act tcc aag aac acc cta tat   240
Lys Gly Arg Phe Thr Ile Ser Arg Asp Thr Ser Lys Asn Thr Leu Tyr
 65                  70                  75                  80

ctc caa atg cgc agt ctg agt gcc gac gac acg gct gtg tat tac tgt   288
Leu Gln Met Arg Ser Leu Ser Ala Asp Asp Thr Ala Val Tyr Tyr Cys
                85                  90                  95

gcg aga gac aag gcg gtt cgg gga att agc agg tac aac tat tac atg   336
Ala Arg Asp Lys Ala Val Arg Gly Ile Ser Arg Tyr Asn Tyr Tyr Met
            100                 105                 110

gac gtc tgg ggc aaa ggg acc acg gtc acc gtc tcc tca               375
Asp Val Trp Gly Lys Gly Thr Thr Val Thr Val Ser Ser
        115                 120                 125
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<210> 6
<211> 125
<212> PRT
<213> Homo sapiens

<400> 6

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Gln Val Lys Leu Leu Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
  1               5                  10                  15

Ser Leu Arg Leu Ser Cys Glu Ala Ser Gly Phe Ala Leu Arg Ser Ser
            20                  25                  30

Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
         35                  40                  45

Ala Leu Ile Trp Phe Asp Gly Ser Ile Arg Ser Tyr Ala Glu Ser Val
     50                  55                  60
```

```
Lys Gly Arg Phe Thr Ile Ser Arg Asp Thr Ser Lys Asn Thr Leu Tyr
 65                  70                  75                  80

Leu Gln Met Arg Ser Leu Ser Ala Asp Asp Thr Ala Val Tyr Tyr Cys
                85                  90                  95

Ala Arg Asp Lys Ala Val Arg Gly Ile Ser Arg Tyr Asn Tyr Tyr Met
            100                 105                 110

Asp Val Trp Gly Lys Gly Thr Thr Val Thr Val Ser Ser
        115                 120                 125
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<210> 7
<211> 318
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<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(318)

<400> 7

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gtg atg acc cag tct cca tcc tcc ctg tct gca tct gta gga gac aga   48
Val Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly Asp Arg
  1               5                  10                  15

gtc acc atc act tgc cgg gca agt cag aac att atc cgc tat tta aat   96
Val Thr Ile Thr Cys Arg Ala Ser Gln Asn Ile Ile Arg Tyr Leu Asn
             20                  25                  30

tgg tat cag cag aag cca ggg aaa gcc cct agg ctc ctg atc tat ggt   144
Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Arg Leu Leu Ile Tyr Gly
         35                  40                  45

gcg tcc act ttg caa agt ggg gtc cca tca agg ttc agt ggc agt gga   192
Ala Ser Thr Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly Ser Gly
     50                  55                  60

tct ggg aca gat ttc act ctc acc atc agt agt ctg caa cct gaa gat   240
Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Glu Asp
 65                  70                  75                  80

ttt gca act tac tac tgt caa cag agt tac cgt acc cct cca ttc act   288
Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Arg Thr Pro Pro Phe Thr
                85                  90                  95

ttc ggc cct ggg acc aaa gtg gag atc aaa                           318
Phe Gly Pro Gly Thr Lys Val Glu Ile Lys
            100                 105
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<210> 8
<211> 106
<212> PRT
<213> Homo sapiens

<400> 8
Val Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly Asp Arg
1 5 10 15

Val Thr Ile Thr Cys Arg Ala Ser Gln Asn Ile Ile Arg Tyr Leu Asn
20 25 30

Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Arg Leu Leu Ile Tyr Gly
35 40 45

Ala Ser Thr Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly Ser Gly
50 55 60

Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Glu Asp
65 70 75 80

Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Arg Thr Pro Pro Phe Thr
85 90 95

Phe Gly Pro Gly Thr Lys Val Glu Ile Lys
100 105

<210> 9
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<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(375)

<400> 9
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Gln Val Lys Leu Leu Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
1 5 10 15

tcc ctg aga ctc tcc tgt gaa gcg tct gga ttc acc ctc aga agt tct 96
Ser Leu Arg Leu Ser Cys Glu Ala Ser Gly Phe Thr Leu Arg Ser Ser
20 25 30

ggc atg cac tgg gtc cgc cag gct cct ggc aag ggg ctg gag tgg gtg 144
Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

gca ctt ata tgg ttt gat gga agt atc aga tcg tat gca gaa tcc gtg 192
Ala Leu Ile Trp Phe Asp Gly Ser Ile Arg Ser Tyr Ala Glu Ser Val
50 55 60

aag ggc cga ttc acc atc tcc aga gac act tcc aag aac acc cta tat 240
Lys Gly Arg Phe Thr Ile Ser Arg Asp Thr Ser Lys Asn Thr Leu Tyr
65 70 75 80

ctc caa atg cgc agt ctg agt gcc gac gac acg gct gtg tat tac tgt 288
Leu Gln Met Arg Ser Leu Ser Ala Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

```
gcg aga gac aag gcg gtt cgg gga att agc agg tac aac tat tac atg   336
Ala Arg Asp Lys Ala Val Arg Gly Ile Ser Arg Tyr Asn Tyr Tyr Met
            100                 105                 110

gac gtc tgg ggc aaa ggg acc acg gtc acc gtc tcc tca               375
Asp Val Trp Gly Lys Gly Thr Thr Val Thr Val Ser Ser
        115                 120                 125
```

<210> 10
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<212> PRT
<213> Homo sapiens

<400> 10

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Gln Val Lys Leu Leu Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
  1               5                  10                  15

Ser Leu Arg Leu Ser Cys Glu Ala Ser Gly Phe Thr Leu Arg Ser Ser
             20                  25                  30

Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
         35                  40                  45

Ala Leu Ile Trp Phe Asp Gly Ser Ile Arg Ser Tyr Ala Glu Ser Val
     50                  55                  60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Thr Ser Lys Asn Thr Leu Tyr
 65                  70                  75                  80

Leu Gln Met Arg Ser Leu Ser Ala Asp Asp Thr Ala Val Tyr Tyr Cys
                 85                  90                  95

Ala Arg Asp Lys Ala Val Arg Gly Ile Ser Arg Tyr Asn Tyr Tyr Met
            100                 105                 110

Asp Val Trp Gly Lys Gly Thr Thr Val Thr Val Ser Ser
        115                 120                 125
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<210> 11
<211> 315
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(315)

<400> 11

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gtg atg acc cag tct cca tcc tcc ctg tct gca tct ata gga gac aga   48
Val Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Ile Gly Asp Arg
  1               5                  10                  15

gtc acc atc acc tgc cgg gca agt cag agt atc atc agg tat ttg aat   96
Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ile Arg Tyr Leu Asn
             20                  25                  30
```

```
tgg tat cag cac aaa cca gga aaa gcc cct aaa ctc ctc atc ttt gct   144
Trp Tyr Gln His Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Phe Ala
         35                  40                  45

gca tcg aat ttg caa act ggg gtc cca tcc agg ttc agt ggc agt gga   192
Ala Ser Asn Leu Gln Thr Gly Val Pro Ser Arg Phe Ser Gly Ser Gly
     50                  55                  60

tct ggg aca gat ttc act ctc acc atc agt gac ctg cag cct gag gat   240
Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Asp Leu Gln Pro Glu Asp
 65                  70                  75                  80

ttc gca act tac tac tgt caa cag agt tac agt agg ccg ttc act ttt   288
Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Ser Arg Pro Phe Thr Phe
                85                  90                  95

ggc cgg ggg acc agc ctg gac atc aaa                              315
Gly Arg Gly Thr Ser Leu Asp Ile Lys
            100                 105
```

<210> 12
<211> 105
<212> PRT
<213> Homo sapiens

<400> 12

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Val Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Ile Gly Asp Arg
  1               5                  10                  15

Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ile Arg Tyr Leu Asn
             20                  25                  30

Trp Tyr Gln His Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Phe Ala
         35                  40                  45

Ala Ser Asn Leu Gln Thr Gly Val Pro Ser Arg Phe Ser Gly Ser Gly
     50                  55                  60

Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Asp Leu Gln Pro Glu Asp
 65                  70                  75                  80

Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Ser Arg Pro Phe Thr Phe
                85                  90                  95

Gly Arg Gly Thr Ser Leu Asp Ile Lys
            100                 105
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<210> 13
<211> 375
<212> DNA
<213> Homo sapiens

<220>
<221> CDS

<222> (1)..(375)

<400> 13

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cag gtg aaa ctg ctc gag tct ggg gga ggc gtg gtc cag cct ggg agg   48
Gln Val Lys Leu Leu Glu Ser Gly Gly Gly Val Val Gln Pro Gly Arg
  1               5                  10                  15

tcc ctg aga ctc tcc tgt ata gcg tct gga ttc acc ctc agg aat tat   96
Ser Leu Arg Leu Ser Cys Ile Ala Ser Gly Phe Thr Leu Arg Asn Tyr
             20                  25                  30

gcc atg cac tgg gtc cgc cag gct cca ggc aag ggg ctg gag tgg gtg   144
Ala Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
         35                  40                  45

gca ggt ata tgg ttt gat gga agc aac aaa aac tat gca gac tcc gtg   192
Ala Gly Ile Trp Phe Asp Gly Ser Asn Lys Asn Tyr Ala Asp Ser Val
     50                  55                  60

aag ggc cga ttc acc atc tcc aga gac aac tcc aag aac act ctg ttt   240
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Phe
 65                  70                  75                  80

ctg cac atg aac agc ctg aga gcc gag gac acg gct aca tat tac tgt   288
Leu His Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Thr Tyr Tyr Cys
                 85                  90                  95

gcg aga gag agg gcg att cgg gga atc agt aga tac aat tac tac atg   336
Ala Arg Glu Arg Ala Ile Arg Gly Ile Ser Arg Tyr Asn Tyr Tyr Met
            100                 105                 110

gac gtc tgg ggc aag ggg acc acg gtc acc gtc tcc tca               375
Asp Val Trp Gly Lys Gly Thr Thr Val Thr Val Ser Ser
        115                 120                 125
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<210> 14
<211> 125
<212> PRT
<213> Homo sapiens

<400> 14

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Gln Val Lys Leu Leu Glu Ser Gly Gly Gly Val Val Gln Pro Gly Arg
  1               5                  10                  15

Ser Leu Arg Leu Ser Cys Ile Ala Ser Gly Phe Thr Leu Arg Asn Tyr
             20                  25                  30

Ala Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
         35                  40                  45

Ala Gly Ile Trp Phe Asp Gly Ser Asn Lys Asn Tyr Ala Asp Ser Val
     50                  55                  60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Phe
 65                  70                  75                  80
```

```
Leu His Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Thr Tyr Tyr Cys
                85                  90                  95

Ala Arg Glu Arg Ala Ile Arg Gly Ile Ser Arg Tyr Asn Tyr Tyr Met
            100                 105                 110

Asp Val Trp Gly Lys Gly Thr Thr Val Thr Val Ser Ser
        115                 120                 125
```

<210> 15
<211> 315
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(315)

<400> 15

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gtg atg acc cag tct cca tcc tcc ctg tct gca tct gta gga gac aga   48
Val Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly Asp Arg
  1               5                  10                  15

gtc acc atc act tgc cgg gca agt cag agc att cga agc tct tta aat   96
Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Arg Ser Ser Leu Asn
            20                  25                  30

tgg tat cag cag aaa cca ggg aaa gcc cct aaa gtc ctg atc tat gct   144
Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Val Leu Ile Tyr Ala
        35                  40                  45

gca tcc agt ttg caa agt ggg gtc cca tcc agg ttc agt ggc aga gga   192
Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly Arg Gly
    50                  55                  60

tct ggg aca gat ttc act ctc acc atc agc agt ctg cag cct gaa gat   240
Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Glu Asp
65                  70                  75                  80

ttt gcg act tat tat tgt caa cag agt tcc agt tcc tcg tgg acg ttc   288
Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Ser Ser Ser Ser Trp Thr Phe
                85                  90                  95

ggc caa ggg acc aag gtg gaa atc aaa                              315
Gly Gln Gly Thr Lys Val Glu Ile Lys
            100                 105
```

<210> 16
<211> 105
<212> PRT
<213> Homo sapiens

<400> 16

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Val Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly Asp Arg
  1               5                  10                  15
```

```
Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Arg Ser Ser Leu Asn
            20                  25                  30

Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Val Leu Ile Tyr Ala
        35                  40                  45

Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly Arg Gly
    50                  55                  60

Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Glu Asp
65                  70                  75                  80

Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Ser Ser Ser Ser Trp Thr Phe
                85                  90                  95

Gly Gln Gly Thr Lys Val Glu Ile Lys
            100                 105
```

<210> 17
<211> 378
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(378)

<400> 17

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cag gtg aaa ctg ctc gag tca gga gga ggc gtg gtc cag cct ggg aag   48
Gln Val Lys Leu Leu Glu Ser Gly Gly Gly Val Val Gln Pro Gly Lys
  1               5                  10                  15

tcc ctg aga ctt tcc tgt gca gcg tct gga ttc agt ttc aat agc cat   96
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Ser Phe Asn Ser His
            20                  25                  30

ggc atg cac tgg gtc cgc cag gct cca ggc aag ggg ctg gag tgg gtg   144
Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
        35                  40                  45

gca ttt ata tgg ttt gat ggc agt aat aaa tac tat gca gac tcc gtg   192
Ala Phe Ile Trp Phe Asp Gly Ser Asn Lys Tyr Tyr Ala Asp Ser Val
    50                  55                  60

aag ggc cga ttc acc atc acc aga gac aac tcc aag aac acg ctg tat   240
Lys Gly Arg Phe Thr Ile Thr Arg Asp Asn Ser Lys Asn Thr Leu Tyr
65                  70                  75                  80

ctg caa atg aac agc ctg aga gcc gag gac acg gct gtc tat tac tgt   288
Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
                85                  90                  95

gcg aga gag acc tca gta agg cta ggg tat agc cgc tac aat tac tac   336
Ala Arg Glu Thr Ser Val Arg Leu Gly Tyr Ser Arg Tyr Asn Tyr Tyr
            100                 105                 110
```

```
atg gac gtc tgg ggc aaa ggg acc acg gtc acc atc tcg tca          378
Met Asp Val Trp Gly Lys Gly Thr Thr Val Thr Ile Ser Ser
        115                 120                 125


<210> 18
<211> 126
<212> PRT
<213> Homo sapiens

<400> 18
Gln Val Lys Leu Leu Glu Ser Gly Gly Gly Val Val Gln Pro Gly Lys
  1               5                  10                  15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Ser Phe Asn Ser His
             20                  25                  30

Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
         35                  40                  45

Ala Phe Ile Trp Phe Asp Gly Ser Asn Lys Tyr Tyr Ala Asp Ser Val
     50                  55                  60

Lys Gly Arg Phe Thr Ile Thr Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 65                  70                  75                  80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
                 85                  90                  95

Ala Arg Glu Thr Ser Val Arg Leu Gly Tyr Ser Arg Tyr Asn Tyr Tyr
            100                 105                 110

Met Asp Val Trp Gly Lys Gly Thr Thr Val Thr Ile Ser Ser
        115                 120                 125


<210> 19
<211> 318
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(318)

<400> 19
gtg atg acc cag tct cca tcc tcc ctg tct gca tct gta gga gac aga   48
Val Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly Asp Arg
  1               5                  10                  15

gtc acc atc act tgc cgg gca agt cag agc att agg agc cat ttg aat   96
Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Arg Ser His Leu Asn
             20                  25                  30

tgg tat cag cag aaa cca ggg aaa gcc cct aag ctc ctg atc tat gct   144
Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr Ala
         35                  40                  45
```

```
gca tcc agt ttg caa ggt ggg gtc cca tca agg ttc agt ggc agt gga   192
Ala Ser Ser Leu Gln Gly Gly Val Pro Ser Arg Phe Ser Gly Ser Gly
     50                  55                  60

tct ggg aca gat ttc act ctc acc atc agc agt ctg caa cct gaa gat   240
Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Glu Asp
 65                  70                  75                  80

ttt gca act tat tac tgt caa cag agt tac agg gcc cct cag tgg acg   288
Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Arg Ala Pro Gln Trp Thr
                85                  90                  95

ttc ggc caa ggg acc aag gtg gaa atc aaa                          318
Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
            100                 105
```

<210> 20
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<212> PRT
<213> Homo sapiens

<400> 20

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Val Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly Asp Arg
  1               5                  10                  15

Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Arg Ser His Leu Asn
             20                  25                  30

Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr Ala
         35                  40                  45

Ala Ser Ser Leu Gln Gly Gly Val Pro Ser Arg Phe Ser Gly Ser Gly
     50                  55                  60

Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Glu Asp
 65                  70                  75                  80

Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Arg Ala Pro Gln Trp Thr
                85                  90                  95

Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
            100                 105
```

<210> 21
<211> 375
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(375)

<400> 21
cag gtg aaa ctg ctc gag tct ggg gga ggc gtg gtc cag ccg ggg ggg 48
Gln Val Lys Leu Leu Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
1 5 10 15

tcc ctg aga ctc tcc tgt gta gcg tct gga ttc acc ctc agg agt tat 96
Ser Leu Arg Leu Ser Cys Val Ala Ser Gly Phe Thr Leu Arg Ser Tyr
20 25 30

ggc atg cac tgg gtc cgc cag gct cca ggc aag ggc ctg gag tgg gtg 144
Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

gct ttt ata tgg ttt gat gga agt aat aaa gga tat gta gac tcc gtg 192
Ala Phe Ile Trp Phe Asp Gly Ser Asn Lys Gly Tyr Val Asp Ser Val
50 55 60

aag ggc cga ttc acc atc tcc cga gac aat tcc aag aac atg gtc tat 240
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Met Val Tyr
65 70 75 80

ctg caa atg aac agc ctg aga gcc gat gac acg gct gta tat tat tgt 288
Leu Gln Met Asn Ser Leu Arg Ala Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

gcg aga gag aag gcg ctt cgg gga atc agc aga tac aac tat tac ctg 336
Ala Arg Glu Lys Ala Leu Arg Gly Ile Ser Arg Tyr Asn Tyr Tyr Leu
100 105 110

gac gtc tgg ggc aag ggg acc acg gtc acc gtc tcc tca 375
Asp Val Trp Gly Lys Gly Thr Thr Val Thr Val Ser Ser
115 120 125

<210> 22
<211> 125
<212> PRT
<213> Homo sapiens

<400> 22
Gln Val Lys Leu Leu Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
1 5 10 15

Ser Leu Arg Leu Ser Cys Val Ala Ser Gly Phe Thr Leu Arg Ser Tyr
20 25 30

Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

Ala Phe Ile Trp Phe Asp Gly Ser Asn Lys Gly Tyr Val Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Met Val Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

```
Ala Arg Glu Lys Ala Leu Arg Gly Ile Ser Arg Tyr Asn Tyr Tyr Leu
            100                 105                 110

Asp Val Trp Gly Lys Gly Thr Thr Val Thr Val Ser Ser
        115                 120                 125
```

<210> 23
<211> 333
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(333)

<400> 23

```
gtg gtg act cag cca ccc tca gcg tct ggg acc ccc gga cag agg gtc   48
Val Val Thr Gln Pro Pro Ser Ala Ser Gly Thr Pro Gly Gln Arg Val
  1               5                  10                  15

acc atc tct tgt tct gga agc aac tcc atc ctt gga agt aag tat gta   96
Thr Ile Ser Cys Ser Gly Ser Asn Ser Ile Leu Gly Ser Lys Tyr Val
             20                  25                  30

tac tgg tac cag aaa ctc cca gga acg gcc ccc aaa ctc ctc atc tat   144
Tyr Trp Tyr Gln Lys Leu Pro Gly Thr Ala Pro Lys Leu Leu Ile Tyr
         35                  40                  45

aag aat gat cag cgg ccc tca ggg gtc tct gac cga ttc tct ggc tcc   192
Lys Asn Asp Gln Arg Pro Ser Gly Val Ser Asp Arg Phe Ser Gly Ser
     50                  55                  60

aag tct ggc acc tcg gcc tcc ctg gcc atc agt ggg ctc cgg tcc gag   240
Lys Ser Gly Thr Ser Ala Ser Leu Ala Ile Ser Gly Leu Arg Ser Glu
 65                  70                  75                  80

gat gag gct gac tat tac tgt gca cca tgg gat gcc aac ctg ggt ggc   288
Asp Glu Ala Asp Tyr Tyr Cys Ala Pro Trp Asp Ala Asn Leu Gly Gly
                 85                  90                  95

ccg gtg ttc ggc gga ggg acc aag ctg acc gtc cta agt cag ccc       333
Pro Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Ser Gln Pro
            100                 105                 110
```

<210> 24
<211> 111
<212> PRT
<213> Homo sapiens

<400> 24

```
Val Val Thr Gln Pro Pro Ser Ala Ser Gly Thr Pro Gly Gln Arg Val
  1               5                  10                  15

Thr Ile Ser Cys Ser Gly Ser Asn Ser Ile Leu Gly Ser Lys Tyr Val
             20                  25                  30
```

```
Tyr Trp Tyr Gln Lys Leu Pro Gly Thr Ala Pro Lys Leu Leu Ile Tyr
         35                  40                  45

Lys Asn Asp Gln Arg Pro Ser Gly Val Ser Asp Arg Phe Ser Gly Ser
     50                  55                  60

Lys Ser Gly Thr Ser Ala Ser Leu Ala Ile Ser Gly Leu Arg Ser Glu
 65                  70                  75                  80

Asp Glu Ala Asp Tyr Tyr Cys Ala Pro Trp Asp Ala Asn Leu Gly Gly
                 85                  90                  95

Pro Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Ser Gln Pro
            100                 105                 110
```

<210> 25
<211> 375
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(375)

<400> 25

```
cag gtg aaa ctg ctc gag tcg ggg gga ggc gtg gtc cag ccg ggg ggg   48
Gln Val Lys Leu Leu Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
  1               5                  10                  15

tcc ctg aga ctc tcc tgt gaa gcg tct gga ttc acc ctc aga agt tct   96
Ser Leu Arg Leu Ser Cys Glu Ala Ser Gly Phe Thr Leu Arg Ser Ser
             20                  25                  30

ggc atg cac tgg gtc cgc cag gct cct ggc aag ggg ctg gag tgg gtg   144
Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
         35                  40                  45

gca ctt ata tgg ttt gat gga agt atc aga tcg tat gca gaa tcc gtg   192
Ala Leu Ile Trp Phe Asp Gly Ser Ile Arg Ser Tyr Ala Glu Ser Val
     50                  55                  60

aag ggc cga ttc acc atc tcc aga gac act tcc aag aac acc cta tat   240
Lys Gly Arg Phe Thr Ile Ser Arg Asp Thr Ser Lys Asn Thr Leu Tyr
 65                  70                  75                  80

ctc caa atg cgc agt ctg agt gcc gac gac acg gct gtg tat tac tgt   288
Leu Gln Met Arg Ser Leu Ser Ala Asp Asp Thr Ala Val Tyr Tyr Cys
                 85                  90                  95

gcg aga gac aag gcg gtt cgg gga att agc agg tac aac tat tac atg   336
Ala Arg Asp Lys Ala Val Arg Gly Ile Ser Arg Tyr Asn Tyr Tyr Met
            100                 105                 110

gac gtc tgg ggc aaa ggg acc acg gtc acc gtc tcc tca               375
Asp Val Trp Gly Lys Gly Thr Thr Val Thr Val Ser Ser
        115                 120                 125
```

<210> 26
<211> 125
<212> PRT
<213> Homo sapiens

<400> 26

```
Gln Val Lys Leu Leu Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
  1               5                  10                  15

Ser Leu Arg Leu Ser Cys Glu Ala Ser Gly Phe Thr Leu Arg Ser Ser
             20                  25                  30

Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
         35                  40                  45

Ala Leu Ile Trp Phe Asp Gly Ser Ile Arg Ser Tyr Ala Glu Ser Val
     50                  55                  60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Thr Ser Lys Asn Thr Leu Tyr
 65                  70                  75                  80

Leu Gln Met Arg Ser Leu Ser Ala Asp Asp Thr Ala Val Tyr Tyr Cys
                 85                  90                  95

Ala Arg Asp Lys Ala Val Arg Gly Ile Ser Arg Tyr Asn Tyr Tyr Met
            100                 105                 110

Asp Val Trp Gly Lys Gly Thr Thr Val Thr Val Ser Ser
        115                 120                 125
```

<210> 27
<211> 312
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(312)

<400> 27

```
gtg atg acc cag tct cca tcc tcc ctg tct gca tct gta gga gac aga   48
Val Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly Asp Arg
  1               5                  10                  15

gtc acc atc act tgc cgg aca agt cag acc att agc aga aat tta aat   96
Val Thr Ile Thr Cys Arg Thr Ser Gln Thr Ile Ser Arg Asn Leu Asn
             20                  25                  30

tgg tat cag cag aaa cca ggg aaa gcc cct aag ctc ctg atc tat gct   144
Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr Ala
         35                  40                  45

aca tcc agt ttg caa agt ggg gtc cca tca agg ttc agt ggc agt gga   192
Thr Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly Ser Gly
     50                  55                  60
```

```
tct ggg aca gat ttc act ctc acc atc aat agt cta caa cct gaa gat   240
Ser Gly Thr Asp Phe Thr Leu Thr Ile Asn Ser Leu Gln Pro Glu Asp
 65                  70                  75                  80

ttt gca act tac tac tgt caa cag agt tac act acc cct tcg ttc ggc   288
Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Thr Thr Pro Ser Phe Gly
                85                  90                  95

caa ggg acc aag gtg gaa atc aaa                                  312
Gln Gly Thr Lys Val Glu Ile Lys
            100
```

<210> 28
<211> 104
<212> PRT
<213> Homo sapiens

<400> 28

```
Val Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly Asp Arg
  1               5                  10                  15

Val Thr Ile Thr Cys Arg Thr Ser Gln Thr Ile Ser Arg Asn Leu Asn
             20                  25                  30

Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr Ala
         35                  40                  45

Thr Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly Ser Gly
     50                  55                  60

Ser Gly Thr Asp Phe Thr Leu Thr Ile Asn Ser Leu Gln Pro Glu Asp
 65                  70                  75                  80

Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Thr Thr Pro Ser Phe Gly
                85                  90                  95

Gln Gly Thr Lys Val Glu Ile Lys
            100
```

<210> 29
<211> 375
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(375)

<400> 29

```
cag gtg aaa ctg ctc gag tct ggg gga ggc ttg gtc cag ccg ggg ggg   48
Gln Val Lys Leu Leu Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
  1               5                  10                  15
```

```
tcc ctg aga ctc tcc tgt gta gcg tct gga ttc acc ttc agg agt tat    96
Ser Leu Arg Leu Ser Cys Val Ala Ser Gly Phe Thr Phe Arg Ser Tyr
            20                  25                  30

ggc atg cac tgg gtc cgc cag gct cca ggc aag ggc ctg gag tgg gtg   144
Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
        35                  40                  45

gct ttt ata tgg ttt gat gga agt aat aaa gga tat gta gac tcc gtg   192
Ala Phe Ile Trp Phe Asp Gly Ser Asn Lys Gly Tyr Val Asp Ser Val
    50                  55                  60

aag ggc cga ttc acc atc tcc cga gac aat tcc aag aac atg ctc tat   240
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Met Leu Tyr
65                  70                  75                  80

ctg caa atg aat agc ctg aga gcc gag gac acg gct gta tat tat tgt   288
Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
                85                  90                  95

gcg aga gag aag gcg ctt cgg gga atc agt aga tac aac tat tac ctg   336
Ala Arg Glu Lys Ala Leu Arg Gly Ile Ser Arg Tyr Asn Tyr Tyr Leu
            100                 105                 110

gac gtc tgg ggc aag ggg gcc acg gtc acc gtc tcc tca               375
Asp Val Trp Gly Lys Gly Ala Thr Val Thr Val Ser Ser
        115                 120                 125
```

<210> 30
<211> 125
<212> PRT
<213> Homo sapiens

<400> 30

```
Gln Val Lys Leu Leu Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
  1               5                  10                  15

Ser Leu Arg Leu Ser Cys Val Ala Ser Gly Phe Thr Phe Arg Ser Tyr
            20                  25                  30

Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
        35                  40                  45

Ala Phe Ile Trp Phe Asp Gly Ser Asn Lys Gly Tyr Val Asp Ser Val
    50                  55                  60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Met Leu Tyr
65                  70                  75                  80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
                85                  90                  95

Ala Arg Glu Lys Ala Leu Arg Gly Ile Ser Arg Tyr Asn Tyr Tyr Leu
            100                 105                 110

Asp Val Trp Gly Lys Gly Ala Thr Val Thr Val Ser Ser
        115                 120                 125
```

<210> 31
<211> 318
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(318)

<400> 31
```
gtg atg acc cag tct cca tcc tcc ctg tct gca tct ata ggc gac aga   48
Val Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Ile Gly Asp Arg
  1               5                  10                  15

gtc acc atc act tgc cgg gca agt cag agc gtt acc agg tct tta aat   96
Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Val Thr Arg Ser Leu Asn
             20                  25                  30

tgg tat cag cag aaa cca ggg aaa gcc cct agg ctc cta atc ttt gct   144
Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Arg Leu Leu Ile Phe Ala
         35                  40                  45

gcg tcc act ttg caa agt ggg gtc cca tca agg ttc agt ggc agt gga   192
Ala Ser Thr Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly Ser Gly
     50                  55                  60

tct ggg aca gat ttc acc ctc acc atc agc agt ctg caa cct gag gat   240
Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Glu Asp
 65                  70                  75                  80

ttt gga act tac tac tgt caa cag aat tac agg acc cct cag tgg acg   288
Phe Gly Thr Tyr Tyr Cys Gln Gln Asn Tyr Arg Thr Pro Gln Trp Thr
                 85                  90                  95

ttc ggc caa ggg acc aag gta gaa atc aaa                          318
Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
            100                 105
```

<210> 32
<211> 106
<212> PRT
<213> Homo sapiens

<400> 32
```
Val Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Ile Gly Asp Arg
  1               5                  10                  15

Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Val Thr Arg Ser Leu Asn
             20                  25                  30

Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Arg Leu Leu Ile Phe Ala
         35                  40                  45

Ala Ser Thr Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly Ser Gly
     50                  55                  60
```

```
Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Glu Asp
 65                  70                  75                  80

Phe Gly Thr Tyr Tyr Cys Gln Gln Asn Tyr Arg Thr Pro Gln Trp Thr
                85                  90                  95

Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
            100                 105
```

<210> 33
<211> 378
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(378)

<400> 33

```
cag gtg aaa ctg ctc gag tct ggg gga ggc gtg gtc cag ccg ggg ggg   48
Gln Val Lys Leu Leu Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
  1               5                  10                  15

tcc ctg aga ctc tcc tgt gta gcg tct gga ttc acc ctc agg agt tat   96
Ser Leu Arg Leu Ser Cys Val Ala Ser Gly Phe Thr Leu Arg Ser Tyr
            20                  25                  30

ggc atg cac tgg gtc cgc cag gct cca ggc aag ggc ctg gag tgg gtg   144
Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
        35                  40                  45

gct ttt ata tgg ttt gat gga agt aat aaa gga tat gta gac tcc gtg   192
Ala Phe Ile Trp Phe Asp Gly Ser Asn Lys Gly Tyr Val Asp Ser Val
    50                  55                  60

aag ggc cga ttc acc atc tcc cga gac aat tcc aag aac atg gtc tat   240
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Met Val Tyr
65                  70                  75                  80

ctg caa atg aac agc ctg aga gcc gat gac acg gct gta tat tat tat   288
Leu Gln Met Asn Ser Leu Arg Ala Asp Asp Thr Ala Val Tyr Tyr Tyr
                85                  90                  95

tgt gcg aga gag aag gcg ctt cgg gga atc agc aga tac aac tat tac   336
Cys Ala Arg Glu Lys Ala Leu Arg Gly Ile Ser Arg Tyr Asn Tyr Tyr
            100                 105                 110

ctg gac gtc tgg ggc aag ggg acc acg gtc acc gtc tcc tca           378
Leu Asp Val Trp Gly Lys Gly Thr Thr Val Thr Val Ser Ser
        115                 120                 125
```

<210> 34
<211> 126
<212> PRT

<213> Homo sapiens

<400> 34

```
Gln Val Lys Leu Leu Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
  1               5                  10                  15

Ser Leu Arg Leu Ser Cys Val Ala Ser Gly Phe Thr Leu Arg Ser Tyr
             20                  25                  30

Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
         35                  40                  45

Ala Phe Ile Trp Phe Asp Gly Ser Asn Lys Gly Tyr Val Asp Ser Val
     50                  55                  60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Met Val Tyr
 65                  70                  75                  80

Leu Gln Met Asn Ser Leu Arg Ala Asp Asp Thr Ala Val Tyr Tyr Tyr
                 85                  90                  95

Cys Ala Arg Glu Lys Ala Leu Arg Gly Ile Ser Arg Tyr Asn Tyr Tyr
            100                 105                 110

Leu Asp Val Trp Gly Lys Gly Thr Thr Val Thr Val Ser Ser
        115                 120                 125
```

<210> 35
<211> 333
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(333)

<400> 35

```
gtg gtg act cag gag ccc tca ctg act gtg tcc cca gga ggg aca gtc   48
Val Val Thr Gln Glu Pro Ser Leu Thr Val Ser Pro Gly Gly Thr Val
  1               5                  10                  15

act ctc acc tgt gct tcc agc act ggg gca gtc acc agg ggt tac tat   96
Thr Leu Thr Cys Ala Ser Ser Thr Gly Ala Val Thr Arg Gly Tyr Tyr
             20                  25                  30

cca aac tgg ttc cag cag aag cct gga caa gca ccc agg gca ctg att   144
Pro Asn Trp Phe Gln Gln Lys Pro Gly Gln Ala Pro Arg Ala Leu Ile
         35                  40                  45

tat agt aca aac aaa aaa cac tcc tgg acc cct gcc cgg ttc tca ggc   192
Tyr Ser Thr Asn Lys Lys His Ser Trp Thr Pro Ala Arg Phe Ser Gly
     50                  55                  60

tcc ctc ctt ggg ggc aaa gct gcc ctg aca ctg tca ggt gtg cag cct   240
Ser Leu Leu Gly Gly Lys Ala Ala Leu Thr Leu Ser Gly Val Gln Pro
 65                  70                  75                  80
```

```
gaa gac gag gct gaa tat tac tgc ctg ctc tac tat ggt ggt gct caa   288
Glu Asp Glu Ala Glu Tyr Tyr Cys Leu Leu Tyr Tyr Gly Gly Ala Gln
                 85                  90                  95

ctc gta ttc ggc gga ggg acc aag ctg acc gtc cta cgt cag ccc       333
Leu Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Arg Gln Pro
            100                 105                 110
```

<210> 36
<211> 111
<212> PRT
<213> Homo sapiens

<400> 36

```
Val Val Thr Gln Glu Pro Ser Leu Thr Val Ser Pro Gly Gly Thr Val
  1               5                  10                  15

Thr Leu Thr Cys Ala Ser Ser Thr Gly Ala Val Thr Arg Gly Tyr Tyr
             20                  25                  30

Pro Asn Trp Phe Gln Gln Lys Pro Gly Gln Ala Pro Arg Ala Leu Ile
         35                  40                  45

Tyr Ser Thr Asn Lys Lys His Ser Trp Thr Pro Ala Arg Phe Ser Gly
     50                  55                  60

Ser Leu Leu Gly Gly Lys Ala Ala Leu Thr Leu Ser Gly Val Gln Pro
 65                  70                  75                  80

Glu Asp Glu Ala Glu Tyr Tyr Cys Leu Leu Tyr Tyr Gly Gly Ala Gln
                 85                  90                  95

Leu Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Arg Gln Pro
            100                 105                 110
```

<210> 37
<211> 375
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(375)

<400> 37

```
cag gtg aaa ctg ctc gag tcg ggg gga ggc gtg gtc cag ccg ggg ggg   48
Gln Val Lys Leu Leu Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
  1               5                  10                  15

tcc ctg aga ctc tcc tgt gaa gcg tct gga ttc acc ctc aga agt tct   96
Ser Leu Arg Leu Ser Cys Glu Ala Ser Gly Phe Thr Leu Arg Ser Ser
             20                  25                  30
```

```
ggc atg cac tgg gtc cgc cag gct cct ggc aag ggg ctg gag tgg gtg   144
Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
         35                  40                  45

gca ctt ata tgg ttt gat gga agt atc aga tcg tat gca gaa tcc gtg   192
Ala Leu Ile Trp Phe Asp Gly Ser Ile Arg Ser Tyr Ala Glu Ser Val
     50                  55                  60

aag ggc cga ttc acc atc tcc aga gac act tcc aag aac acc cta tat   240
Lys Gly Arg Phe Thr Ile Ser Arg Asp Thr Ser Lys Asn Thr Leu Tyr
 65                  70                  75                  80

ctc caa atg cgc agt ctg agt gcc gac gac acg gct gtg tat tac tgt   288
Leu Gln Met Arg Ser Leu Ser Ala Asp Asp Thr Ala Val Tyr Tyr Cys
                 85                  90                  95

gcg aga gac aag gcg gtt cgg gga att agc agg tac aac tat tac atg   336
Ala Arg Asp Lys Ala Val Arg Gly Ile Ser Arg Tyr Asn Tyr Tyr Met
            100                 105                 110

gac gtc tgg ggc aaa ggg acc acg gtc acc gtc tcc tca               375
Asp Val Trp Gly Lys Gly Thr Thr Val Thr Val Ser Ser
        115                 120                 125
```

<210> 38
<211> 125
<212> PRT
<213> Homo sapiens

<400> 38

```
Gln Val Lys Leu Leu Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
  1               5                  10                  15

Ser Leu Arg Leu Ser Cys Glu Ala Ser Gly Phe Thr Leu Arg Ser Ser
             20                  25                  30

Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
         35                  40                  45

Ala Leu Ile Trp Phe Asp Gly Ser Ile Arg Ser Tyr Ala Glu Ser Val
     50                  55                  60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Thr Ser Lys Asn Thr Leu Tyr
 65                  70                  75                  80

Leu Gln Met Arg Ser Leu Ser Ala Asp Asp Thr Ala Val Tyr Tyr Cys
                 85                  90                  95

Ala Arg Asp Lys Ala Val Arg Gly Ile Ser Arg Tyr Asn Tyr Tyr Met
            100                 105                 110

Asp Val Trp Gly Lys Gly Thr Thr Val Thr Val Ser Ser
        115                 120                 125
```

<210> 39
<211> 315
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(315)

<400> 39

```
gtg ttg acc cag tct cca tcc tcc ctg tct gca tct ata cga gac aga   48
Val Leu Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Ile Arg Asp Arg
  1               5                  10                  15

gtc acc atc act tgc cgg gca agt cag aac att ggc agt tat tta aat   96
Val Thr Ile Thr Cys Arg Ala Ser Gln Asn Ile Gly Ser Tyr Leu Asn
             20                  25                  30

tgg tat cag cac aaa cca ggg aca gcc cct aaa ctc ctg atc tat gct   144
Trp Tyr Gln His Lys Pro Gly Thr Ala Pro Lys Leu Leu Ile Tyr Ala
         35                  40                  45

gta tcc gct ttg caa agt ggg gtc cca tcg agg ttc agt ggc agt aga   192
Val Ser Ala Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly Ser Arg
     50                  55                  60

tct ggg aca gat ttc act ctc acc atc agc agt ctg caa cct gaa gat   240
Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Glu Asp
 65                  70                  75                  80

ttt gca act tac tac tgt caa cag agt tac agt ccc ccg tac act ttc   288
Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Ser Pro Pro Tyr Thr Phe
                 85                  90                  95

ggc cag ggg acc aac ctg cag atc aaa                               315
Gly Gln Gly Thr Asn Leu Gln Ile Lys
            100                 105
```

<210> 40
<211> 105
<212> PRT
<213> Homo sapiens

<400> 40

```
Val Leu Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Ile Arg Asp Arg
  1               5                  10                  15

Val Thr Ile Thr Cys Arg Ala Ser Gln Asn Ile Gly Ser Tyr Leu Asn
             20                  25                  30

Trp Tyr Gln His Lys Pro Gly Thr Ala Pro Lys Leu Leu Ile Tyr Ala
         35                  40                  45

Val Ser Ala Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly Ser Arg
     50                  55                  60
```

```
Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Glu Asp
 65                  70                  75                  80

Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Ser Pro Pro Tyr Thr Phe
                85                  90                  95

Gly Gln Gly Thr Asn Leu Gln Ile Lys
            100                 105
```

<210> 41
<211> 375
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(375)

<400> 41

```
cag gtg aaa ctg ctc gag tct ggg gga ggc gtg gtc cag ccg ggg ggg   48
Gln Val Lys Leu Leu Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
  1               5                  10                  15

tcc ctg aga gtc gcc tgt gta gcg tct gga ttc acc ttc agg aat ttt   96
Ser Leu Arg Val Ala Cys Val Ala Ser Gly Phe Thr Phe Arg Asn Phe
            20                  25                  30

ggc atg cac tgg gtc cgc cag gct cca ggc aag ggg ctg gag tgg gtg   144
Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
        35                  40                  45

gct ttt att tgg ttt gat gca agt aat aaa gga tat gga gac tcc gtt   192
Ala Phe Ile Trp Phe Asp Ala Ser Asn Lys Gly Tyr Gly Asp Ser Val
    50                  55                  60

aag ggc cga ttc acc gtc tcc aga gac aat tcc aag aac acg ctc tat   240
Lys Gly Arg Phe Thr Val Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 65                  70                  75                  80

ctg caa atg aac ggc ctg aga gcc gaa gac acg gct gta tat tat tgt   288
Leu Gln Met Asn Gly Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
                85                  90                  95

gcg aga gag aag gcg gtt cgg gga att agt aga tac aac tac tac atg   336
Ala Arg Glu Lys Ala Val Arg Gly Ile Ser Arg Tyr Asn Tyr Tyr Met
            100                 105                 110

gac gtc tgg ggc aag ggg acc acg gtc acc gtc tcc tca               375
Asp Val Trp Gly Lys Gly Thr Thr Val Thr Val Ser Ser
        115                 120                 125
```

<210> 42
<211> 125
<212> PRT
<213> Homo sapiens

<400> 42

```
Gln Val Lys Leu Leu Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
  1               5                  10                  15

Ser Leu Arg Val Ala Cys Val Ala Ser Gly Phe Thr Phe Arg Asn Phe
             20                  25                  30

Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
         35                  40                  45

Ala Phe Ile Trp Phe Asp Ala Ser Asn Lys Gly Tyr Gly Asp Ser Val
     50                  55                  60

Lys Gly Arg Phe Thr Val Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 65                  70                  75                  80

Leu Gln Met Asn Gly Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
                 85                  90                  95

Ala Arg Glu Lys Ala Val Arg Gly Ile Ser Arg Tyr Asn Tyr Tyr Met
            100                 105                 110

Asp Val Trp Gly Lys Gly Thr Thr Val Thr Val Ser Ser
        115                 120                 125
```

<210> 43
<211> 315
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(315)

<400> 43

```
gtg atg acc cag tct cca tcc tcc ctg tct gca tct gtg gga gac aga   48
Val Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly Asp Arg
  1               5                  10                  15

gtc acc atc act tgc cgg gca agt cag agc att atc aac aat tta aat   96
Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ile Asn Asn Leu Asn
             20                  25                  30

tgg tat cag cag aaa cca ggc aaa gcc cct gaa ctc ctg atc tat gct   144
Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Glu Leu Leu Ile Tyr Ala
         35                  40                  45

gca tcc agt ttg caa agt ggg gtc cct tca agg ttc cgt ggc agt gga   192
Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Arg Gly Ser Gly
     50                  55                  60

tct ggg aga gat ttc act ctc acc gtc acc agt ctg caa cct gaa gat   240
Ser Gly Arg Asp Phe Thr Leu Thr Val Thr Ser Leu Gln Pro Glu Asp
 65                  70                  75                  80
```

```
ttt gca act tac tac tgt caa cag agt tac agt acc ctg tgg acg ttc   288
Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Ser Thr Leu Trp Thr Phe
                 85                  90                  95

ggc caa ggg acc aag gtg gaa atc aaa                              315
Gly Gln Gly Thr Lys Val Glu Ile Lys
            100                 105


<210> 44
<211> 105
<212> PRT
<213> Homo sapiens

<400> 44
Val Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly Asp Arg
  1               5                  10                  15

Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ile Asn Asn Leu Asn
             20                  25                  30

Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Glu Leu Leu Ile Tyr Ala
         35                  40                  45

Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Arg Gly Ser Gly
     50                  55                  60

Ser Gly Arg Asp Phe Thr Leu Thr Val Thr Ser Leu Gln Pro Glu Asp
 65                  70                  75                  80

Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Ser Thr Leu Trp Thr Phe
                 85                  90                  95

Gly Gln Gly Thr Lys Val Glu Ile Lys
            100                 105


<210> 45
<211> 375
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(375)

<400> 45
cag gtg aaa ctg ctc gag tct ggg gga ggc gtg gtc cag ccg ggg ggg   48
Gln Val Lys Leu Leu Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
  1               5                  10                  15

tcc ctg aga ctc tcc tgt gta gcg tct gga ttc acc ttc agg agt tat   96
Ser Leu Arg Leu Ser Cys Val Ala Ser Gly Phe Thr Phe Arg Ser Tyr
             20                  25                  30

ggc atg cac tgg gtc cgc cag gct cca ggc aag ggc ctg gag tgg gtg   144
Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
         35                  40                  45
```

```
gct ttt ata tgg ttt gat gga agt aat aaa gga tat gta gac tcc gtg   192
Ala Phe Ile Trp Phe Asp Gly Ser Asn Lys Gly Tyr Val Asp Ser Val
     50                  55                  60

aag ggc cga ttc acc atc tcc cga gac aat tcc aag aac acg ctc tat   240
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 65                  70                  75                  80

ctg caa atg aag agc ctg aga gcc gag gac acg gct gta tat tat tgt   288
Leu Gln Met Lys Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
                85                  90                  95

gcg aga gag aag gcg ctt cgg gga atc agt aga tac aac tat tac ctg   336
Ala Arg Glu Lys Ala Leu Arg Gly Ile Ser Arg Tyr Asn Tyr Tyr Leu
            100                 105                 110

gac gtc tgg ggc aag ggg acc acg gtc acc gtc tcc tca               375
Asp Val Trp Gly Lys Gly Thr Thr Val Thr Val Ser Ser
        115                 120                 125
```

<210> 46
<211> 125
<212> PRT
<213> Homo sapiens

<400> 46

```
Gln Val Lys Leu Leu Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
  1               5                  10                  15

Ser Leu Arg Leu Ser Cys Val Ala Ser Gly Phe Thr Phe Arg Ser Tyr
            20                  25                  30

Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
        35                  40                  45

Ala Phe Ile Trp Phe Asp Gly Ser Asn Lys Gly Tyr Val Asp Ser Val
     50                  55                  60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 65                  70                  75                  80

Leu Gln Met Lys Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
                85                  90                  95

Ala Arg Glu Lys Ala Leu Arg Gly Ile Ser Arg Tyr Asn Tyr Tyr Leu
            100                 105                 110

Asp Val Trp Gly Lys Gly Thr Thr Val Thr Val Ser Ser
        115                 120                 125
```

<210> 47
<211> 315
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(315)

<400> 47
gtg atg acc cag tct cca ttc tcc ctg tct gca tct gta gga gac aga 48
Val Met Thr Gln Ser Pro Phe Ser Leu Ser Ala Ser Val Gly Asp Arg
1 5 10 15

gtc acc atc act tgc cgg gca agt cag aac att agg agt ttt tta agt 96
Val Thr Ile Thr Cys Arg Ala Ser Gln Asn Ile Arg Ser Phe Leu Ser
20 25 30

tgg tat cag cag aaa cca ggg aca gcc cct aag ctc ctg atc tat gct 144
Trp Tyr Gln Gln Lys Pro Gly Thr Ala Pro Lys Leu Leu Ile Tyr Ala
35 40 45

gca tcc agg ttg caa agt ggg gtc cca tca agg ttc agt ggc agt ggg 192
Ala Ser Arg Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly Ser Gly
50 55 60

tct ggg aca gat ttc act ctc acc atc agc act ctg caa cct gaa gat 240
Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Thr Leu Gln Pro Glu Asp
65 70 75 80

ttt gcg act tac tac tgt caa cag agt tac agt gcc cct tgg acg ttc 288
Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Ser Ala Pro Trp Thr Phe
85 90 95

ggc caa ggg acc aag ctg gaa atc aaa 315
Gly Gln Gly Thr Lys Leu Glu Ile Lys
100 105

<210> 48
<211> 105
<212> PRT
<213> Homo sapiens

<400> 48
Val Met Thr Gln Ser Pro Phe Ser Leu Ser Ala Ser Val Gly Asp Arg
1 5 10 15

Val Thr Ile Thr Cys Arg Ala Ser Gln Asn Ile Arg Ser Phe Leu Ser
20 25 30

Trp Tyr Gln Gln Lys Pro Gly Thr Ala Pro Lys Leu Leu Ile Tyr Ala
35 40 45

Ala Ser Arg Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly Ser Gly
50 55 60

Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Thr Leu Gln Pro Glu Asp
65 70 75 80

Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Ser Ala Pro Trp Thr Phe
85 90 95

```
Gly Gln Gly Thr Lys Leu Glu Ile Lys
            100                 105



<210> 49
<211> 375
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(375)

<400> 49
cag gtg aaa ctg ctc gag tct ggg gga ggc gtg gtc cag ccg ggg ggg   48
Gln Val Lys Leu Leu Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
  1               5                  10                  15

tcc ctg aga ctc tcc tgt gta gcg tct gga ttc acc tcc agg agt tat   96
Ser Leu Arg Leu Ser Cys Val Ala Ser Gly Phe Thr Ser Arg Ser Tyr
            20                  25                  30

ggc atg cac tgg gtc cgc cag gct cca ggc aag ggc ctg gag tgg gtg   144
Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
         35                  40                  45

gct ttt ata tgg ttt gat gga agt aat aaa gga tat gta gac tcc gtg   192
Ala Phe Ile Trp Phe Asp Gly Ser Asn Lys Gly Tyr Val Asp Ser Val
     50                  55                  60

aag ggc cga ttc acc atc tcc cga gac aat tcc aag aac acg ctc tat   240
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 65                  70                  75                  80

ctg caa atg aag agc ctg aga gcc gag gac acg gct gta tat tat tgt   288
Leu Gln Met Lys Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
                85                  90                  95

gcg aga gag aag gcg ctt cgg gga atc agt aga tac aac tat tac ctg   336
Ala Arg Glu Lys Ala Leu Arg Gly Ile Ser Arg Tyr Asn Tyr Tyr Leu
            100                 105                 110

gac gtc tgg ggc aag ggg acc acg gtc acc gtc tcc tca               375
Asp Val Trp Gly Lys Gly Thr Thr Val Thr Val Ser Ser
        115                 120                 125


<210> 50
<211> 125
<212> PRT
<213> Homo sapiens

<400> 50
Gln Val Lys Leu Leu Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
  1               5                  10                  15
```

```
Ser Leu Arg Leu Ser Cys Val Ala Ser Gly Phe Thr Ser Arg Ser Tyr
            20                  25                  30

Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
        35                  40                  45

Ala Phe Ile Trp Phe Asp Gly Ser Asn Lys Gly Tyr Val Asp Ser Val
    50                  55                  60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
65                  70                  75                  80

Leu Gln Met Lys Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
                85                  90                  95

Ala Arg Glu Lys Ala Leu Arg Gly Ile Ser Arg Tyr Asn Tyr Tyr Leu
            100                 105                 110

Asp Val Trp Gly Lys Gly Thr Thr Val Thr Val Ser Ser
        115                 120                 125
```

<210> 51
<211> 315
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(315)

<400> 51

```
gtg atg acc cag tct cca tcc tcc ctg tct gca tct gta gga gac aga   48
Val Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly Asp Arg
  1               5                  10                  15

gtc acc atc act tgc cgg gca agt cag agc att agc agc tat tta aat   96
Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Ser Tyr Leu Asn
            20                  25                  30

tgg tat cag cag aaa cca ggg aaa gcc cct aag ctc ctg atc tat gct   144
Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr Ala
        35                  40                  45

gca tcc agt ttg caa agt ggg gtc cca tca agg ttc agt ggc agt gga   192
Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly Ser Gly
    50                  55                  60

tct ggg aca gat ttc act ctc acc atc agc agt ctg caa cct gaa gat   240
Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Glu Asp
65                  70                  75                  80

ttt gca act tac tac tgt caa cag agt tac agt acc cga ttc act ttc   288
Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Ser Thr Arg Phe Thr Phe
                85                  90                  95
```

ggc cct ggg acc aaa gtg gat atc aaa 315
Gly Pro Gly Thr Lys Val Asp Ile Lys
100 105

<210> 52
<211> 105
<212> PRT
<213> Homo sapiens

<400> 52
Val Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly Asp Arg
1 5 10 15

Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Ser Tyr Leu Asn
20 25 30

Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr Ala
35 40 45

Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly Ser Gly
50 55 60

Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Glu Asp
65 70 75 80

Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Ser Thr Arg Phe Thr Phe
85 90 95

Gly Pro Gly Thr Lys Val Asp Ile Lys
100 105

<210> 53
<211> 384
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(384)

<400> 53
cag gtg aaa ctg ctc gag tct ggg gga ggc gtg gtc cag cct ggg agg 48
Gln Val Lys Leu Leu Glu Ser Gly Gly Gly Val Val Gln Pro Gly Arg
1 5 10 15

tcc ctg aga ctt tcc tgt gca gcg tct gga ttt acc ttc agt agc tat 96
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
20 25 30

ggc atg cac tgg gtc cgc cag gct cca ggc aag ggg ctg gag tgg gtg 144
Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

gca gat ata tgg ttt gat gga ggt aat aaa cat tat gca gac ttc gtg 192
Ala Asp Ile Trp Phe Asp Gly Gly Asn Lys His Tyr Ala Asp Phe Val
50 55 60

```
aag ggc cga ttc acc atc tcc aga gac aat tcc aag aac acg gtg tat   240
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Val Tyr
 65                  70                  75                  80

cta caa atg aac agc ctg aga gtc gag gac acg gct gtg tat tac tgt   288
Leu Gln Met Asn Ser Leu Arg Val Glu Asp Thr Ala Val Tyr Tyr Cys
                85                  90                  95

gcg agg gat tac tat agc gtt act aag aaa ctc aga ctc cac tac tac   336
Ala Arg Asp Tyr Tyr Ser Val Thr Lys Lys Leu Arg Leu His Tyr Tyr
            100                 105                 110

tac tac atg gac gtc tgg ggc aaa ggg acc acg gtc acc gtc tcc tca   384
Tyr Tyr Met Asp Val Trp Gly Lys Gly Thr Thr Val Thr Val Ser Ser
        115                 120                 125
```

<210> 54
<211> 128
<212> PRT
<213> Homo sapiens

<400> 54

```
Gln Val Lys Leu Leu Glu Ser Gly Gly Gly Val Val Gln Pro Gly Arg
  1               5                  10                  15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
             20                  25                  30

Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
         35                  40                  45

Ala Asp Ile Trp Phe Asp Gly Gly Asn Lys His Tyr Ala Asp Phe Val
     50                  55                  60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Val Tyr
 65                  70                  75                  80

Leu Gln Met Asn Ser Leu Arg Val Glu Asp Thr Ala Val Tyr Tyr Cys
                85                  90                  95

Ala Arg Asp Tyr Tyr Ser Val Thr Lys Lys Leu Arg Leu His Tyr Tyr
            100                 105                 110

Tyr Tyr Met Asp Val Trp Gly Lys Gly Thr Thr Val Thr Val Ser Ser
        115                 120                 125
```

<210> 55
<211> 315
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(315)

<400> 55
gtg atg acc cag tct cca tcc tcc ctg tct gca tct gta gga gac aga 48
Val Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly Asp Arg
1 5 10 15

gtc acc atc act tgc cgg gca agt cag ggc att aga aat gat tta acc 96
Val Thr Ile Thr Cys Arg Ala Ser Gln Gly Ile Arg Asn Asp Leu Thr
20 25 30

tgg tat cag caa aaa cca ggg aaa gcc cct aag ctc ctg atc tat gct 144
Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr Ala
35 40 45

gca tcc aat tta caa agt ggg gtc cca tca agg ttc agc ggc agt gga 192
Ala Ser Asn Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly Ser Gly
50 55 60

tct ggc aca gat ttc act ctc acc atc agc agc ctg cag cct gaa gat 240
Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Glu Asp
65 70 75 80

ttt gca act tat tac tgt cta caa gat aac aat ttc ccg tac act ttt 288
Phe Ala Thr Tyr Tyr Cys Leu Gln Asp Asn Asn Phe Pro Tyr Thr Phe
85 90 95

ggc cag ggg acc aag ctg gag atc aaa 315
Gly Gln Gly Thr Lys Leu Glu Ile Lys
100 105

<210> 56
<211> 105
<212> PRT
<213> Homo sapiens

<400> 56
Val Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly Asp Arg
1 5 10 15

Val Thr Ile Thr Cys Arg Ala Ser Gln Gly Ile Arg Asn Asp Leu Thr
20 25 30

Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr Ala
35 40 45

Ala Ser Asn Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly Ser Gly
50 55 60

Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Glu Asp
65 70 75 80

Phe Ala Thr Tyr Tyr Cys Leu Gln Asp Asn Asn Phe Pro Tyr Thr Phe
85 90 95

Gly Gln Gly Thr Lys Leu Glu Ile Lys
100 105

<210> 57
<211> 375
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(375)

<400> 57
```
cag gtg aaa ctg ctc gag tct ggg gga ggc gtg gtc cag ccg ggg ggg   48
Gln Val Lys Leu Leu Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
  1               5                  10                  15

tcc ctg aga gtc gcc tgt gta gcg tct gga ttc acc ttc agg aat ttt   96
Ser Leu Arg Val Ala Cys Val Ala Ser Gly Phe Thr Phe Arg Asn Phe
             20                  25                  30

ggc atg cac tgg gtc cgc cag gct cca ggc aag ggg ctg gag tgg gtg   144
Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
         35                  40                  45

gct ttt att tgg ttt gat gca agt aat aaa gga tat gga gac tcc gtt   192
Ala Phe Ile Trp Phe Asp Ala Ser Asn Lys Gly Tyr Gly Asp Ser Val
     50                  55                  60

aag ggc cga ttc acc gtc tcc aga gac aat tcc aag aac acg ctc tat   240
Lys Gly Arg Phe Thr Val Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 65                  70                  75                  80

ctg caa atg aac ggc ctg aga gcc gaa gac acg gct gta tat tat tgt   288
Leu Gln Met Asn Gly Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
                 85                  90                  95

gcg aga gag aag gcg gtt cgg gga att agt aga tac aac tac tac atg   336
Ala Arg Glu Lys Ala Val Arg Gly Ile Ser Arg Tyr Asn Tyr Tyr Met
            100                 105                 110

gac gtc tgg ggc aag ggg acc acg gtc acc gtc tcc tca               375
Asp Val Trp Gly Lys Gly Thr Thr Val Thr Val Ser Ser
        115                 120                 125
```

<210> 58
<211> 125
<212> PRT
<213> Homo sapiens

<400> 58
```
Gln Val Lys Leu Leu Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
  1               5                  10                  15

Ser Leu Arg Val Ala Cys Val Ala Ser Gly Phe Thr Phe Arg Asn Phe
             20                  25                  30
```

```
Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
         35                  40                  45

Ala Phe Ile Trp Phe Asp Ala Ser Asn Lys Gly Tyr Gly Asp Ser Val
     50                  55                  60

Lys Gly Arg Phe Thr Val Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 65                  70                  75                  80

Leu Gln Met Asn Gly Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
                 85                  90                  95

Ala Arg Glu Lys Ala Val Arg Gly Ile Ser Arg Tyr Asn Tyr Tyr Met
            100                 105                 110

Asp Val Trp Gly Lys Gly Thr Thr Val Thr Val Ser Ser
        115                 120                 125
```

<210> 59
<211> 315
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(315)

<400> 59

```
gtg atg acc cag tct cca tcc tcc ctg tct gca tct gta gga gac aga   48
Val Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly Asp Arg
  1               5                  10                  15

gtc acc atc act tgc cgg gca agt cag agc att atc aga tat tta aat   96
Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ile Arg Tyr Leu Asn
             20                  25                  30

tgg tat cag cac aaa cca ggg aaa gcc cct aag ctc ctg atc cat act   144
Trp Tyr Gln His Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile His Thr
         35                  40                  45

gca tcc agt ttg caa agt ggg gtc ccg tca agg ttc agt ggc agt gta   192
Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly Ser Val
     50                  55                  60

tct ggg aca gat ttc act ctc acc atc agc agt ctg caa cct gaa gat   240
Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Glu Asp
 65                  70                  75                  80

ttt gca act tac tac tgt caa cag agt tac act acc ccg tac act ttt   288
Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Thr Thr Pro Tyr Thr Phe
                 85                  90                  95

ggc cag ggg acc aag ctg cag atc aaa                               315
Gly Gln Gly Thr Lys Leu Gln Ile Lys
            100                 105
```

<210> 60
<211> 105
<212> PRT
<213> Homo sapiens

<400> 60
Val Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly Asp Arg
1 5 10 15

Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ile Arg Tyr Leu Asn
20 25 30

Trp Tyr Gln His Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile His Thr
35 40 45

Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly Ser Val
50 55 60

Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Glu Asp
65 70 75 80

Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Thr Thr Pro Tyr Thr Phe
85 90 95

Gly Gln Gly Thr Lys Leu Gln Ile Lys
100 105

<210> 61
<211> 375
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(375)

<400> 61
cag gtg aaa ctg ctc gag tct ggg gga ggc gtg gtc cag ccg ggg ggg 48
Gln Val Lys Leu Leu Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
1 5 10 15

tcc ctg aga gtc gcc tgt gta gcg tct gga ttc acc ttc agg aat ttt 96
Ser Leu Arg Val Ala Cys Val Ala Ser Gly Phe Thr Phe Arg Asn Phe
20 25 30

ggc atg cac tgg gtc cgc cag gct cca ggc aag ggg ctg gag tgg gtg 144
Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

gct ttt att tgg ttt gat gca agt aat aaa gga tat gga gac tcc gtt 192
Ala Phe Ile Trp Phe Asp Ala Ser Asn Lys Gly Tyr Gly Asp Ser Val
50 55 60

```
aag ggc cga ttc acc gtc tcc aga gac aat tcc aag aac acg ctc tat   240
Lys Gly Arg Phe Thr Val Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 65                  70                  75                  80

ctg caa atg aac ggc ctg aga gcc gaa gac acg gct gta tat tat tgt   288
Leu Gln Met Asn Gly Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
                85                  90                  95

gcg aga gag aag gcg gtt cgg gga att agt aga tac aac tac tac atg   336
Ala Arg Glu Lys Ala Val Arg Gly Ile Ser Arg Tyr Asn Tyr Tyr Met
            100                 105                 110

gac gtc tgg ggc aag ggg acc acg gtc acc gtc tcc tca               375
Asp Val Trp Gly Lys Gly Thr Thr Val Thr Val Ser Ser
        115                 120                 125
```

<210> 62
<211> 125
<212> PRT
<213> Homo sapiens

<400> 62

```
Gln Val Lys Leu Leu Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
  1               5                  10                  15

Ser Leu Arg Val Ala Cys Val Ala Ser Gly Phe Thr Phe Arg Asn Phe
             20                  25                  30

Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
         35                  40                  45

Ala Phe Ile Trp Phe Asp Ala Ser Asn Lys Gly Tyr Gly Asp Ser Val
     50                  55                  60

Lys Gly Arg Phe Thr Val Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 65                  70                  75                  80

Leu Gln Met Asn Gly Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
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Asp Val Trp Gly Lys Gly Thr Thr Val Thr Val Ser Ser
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Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ile Arg Tyr Leu Asn
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Trp Tyr Gln His Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile His Ala
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gca tcc agt ttg caa agt ggg gtc ccg tca agg ttc agt ggc agt gta 192
Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly Ser Val
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Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Glu Asp
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Trp Tyr Gln His Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile His Ala
35 40 45

Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly Ser Val
50 55 60

Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Glu Asp
65 70 75 80

Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Thr Thr Pro Tyr Thr Phe
85 90 95

Gly Gln Gly Thr Lys Leu Gln Ile Lys
100 105